ABSTRACT

The invention relates to a phosphonium borate compound represented by Formula (I) (hereinafter, the compound (I)). The invention has objects of providing (A) a novel process whereby the compound is produced safely on an industrial scale, by simple reaction operations and in a high yield; (B) a novel compound that is easily handled; and (C) novel use as catalyst.

Formula (I): $(R^1)(R^2)(R^3)PH \cdot BAr_4$ (I)

wherein R^1, R^2, R^3 and Ar are as defined in the specification.

The process (A) includes reacting a phosphine with a) HCl or b) H_2SO_4 to produce a) a hydrochloride or b) a sulfate; and reacting the salt with a tetraarylborate compound.

The compound (B) has for example a secondary or tertiary alkyl group as R^1 and is easily handled in air without special attention.

The use (C) is characterized in that the compound (I) is used instead of an unstable phosphine compound of a transition metal complex catalyst for catalyzing C-C bond, C-N bond and C-O bond forming reactions and the compound produces an effect that is equal to that achieved by the transition metal complex catalyst.